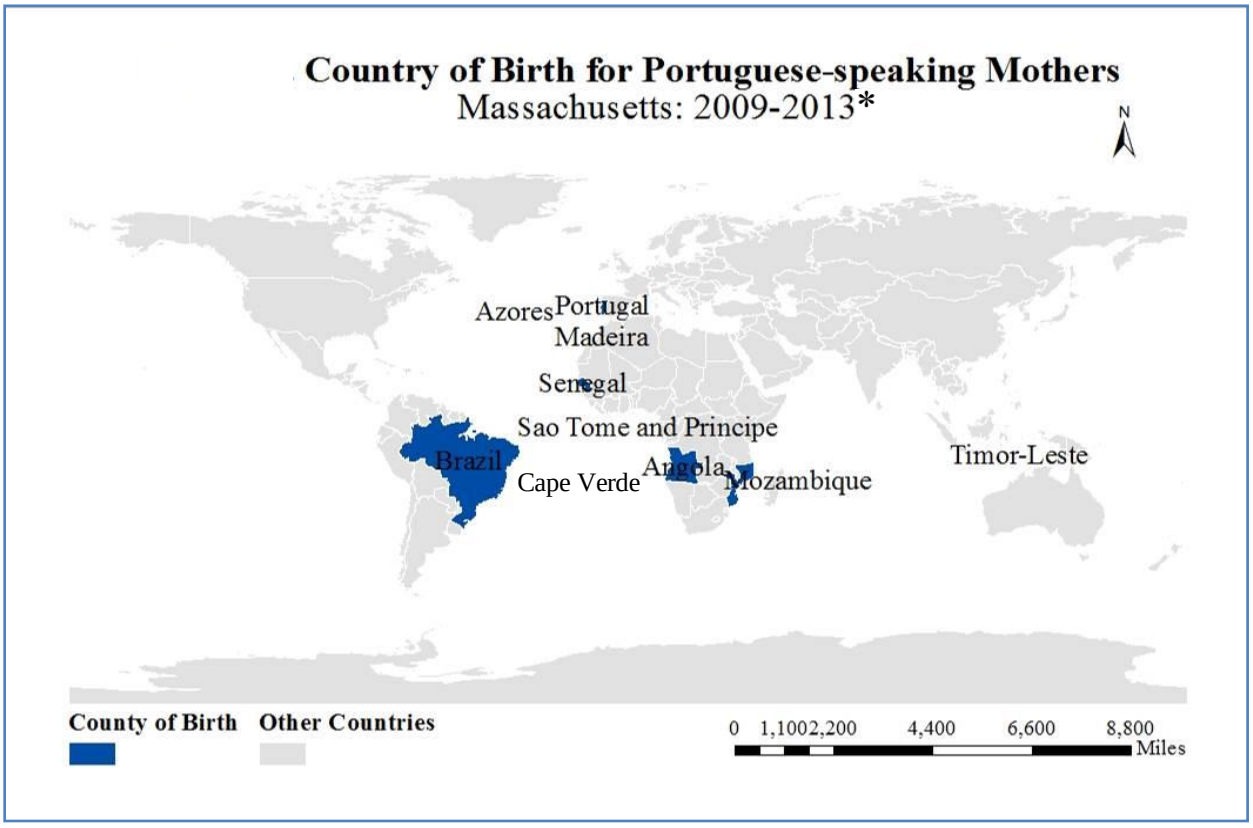
Births from Portuguese-speaking Mothers in Massachusetts: Data Brief



Office of Data Management and Outcomes Assessment

Massachusetts Department of Public Health

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* Source: ERSI, 2014 World Countries

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Introduction

This report has been prepared in two sections. Data on demographic and socioeconomic characteristics among Portuguese speakers such as age, education, income, and poverty were presented in the first section of this report.[1] This information is based on data from the 2009-2013 American Community Survey. In the second section of this report, various health indicators related to births for Portuguese-speaking mothers are described using aggregated birth data in Massachusetts from 2009 to 2013.

Annual surveillance of birth outcomes suggest that indicators such as incidence of low birthweight, preterm birth, teen births, and adequacy of prenatal care, vary substantially between major racial and ethnic groups. Therefore, it is critical to break down birth data into relevant subgroups wherever possible. For example, the statewide low birthweight rate was 7.7% in 2013, while the breakdown by racial group was 7.0% for White non-Hispanics, 7.9% for Asians, and 10.9% for Black non-Hispanics.[2] With regard to teen births, 13.8% of Hispanic mothers gave births under the age of 20, compared to 2.7% of White non-Hispanic mothers.[3]

Among subgroups of these major racial and ethnic groups, there is also variation in perinatal outcomes that may be masked when data is aggregated and presented in these larger groups. The report, *Asian Births in Massachusetts: 1996-1997,* showed a wide range of outcomes between Asian ethnic groups. For example, the incidence of low birthweight ranged from 2.7% for Korean infants to 10.6% for Pakistani infants. The second report in this series, *Hispanic Births in Massachusetts: 1996-1999*, documented many of these disparities in birth outcomes as well. During this time period, the incidence of low birthweight among nine Hispanic subgroups in Massachusetts ranged from 4.3% for Colombian infants to greater than 9.0% for Puerto Rican and Other Hispanic infants. The incidence of preterm births ranged from less than 6.5% for Other South American, Colombian, and Mexican infants to greater than 9.0% for Puerto Rican and Other Hispanic infants.

According to data published in the annual Massachusetts Births surveillance reports (*Massachusetts Births* series), ethnic subgroup variation also exists for Portuguese-speaking subgroups. In 2013, Brazilian mothers had the highest percentage of cesarean deliveries (41.5%) followed by Portuguese mothers at 36.0% and Cape Verdean mothers at 31.5%. By aggregating 5 years of birth data, this report will allow for the analysis of additional Portuguese-speaking subgroups for which numbers of births are too small in a given year to produce stable statistics.

Methods

All births to Portuguese-speaking mothers residing in Massachusetts who gave birth during 2009 to 2013 are included in this report.[4] All variables included in the analysis were derived from the Parent Worksheet or the Hospital Worksheet for the Massachusetts Certificate of Live Birth (see Appendix for details). The Parent Worksheet included demographic and behavioral data, such as ancestry and tobacco use, that are supplied by mothers who gave birth. The Hospital Worksheet includes clinical information, such as birthweight and prematurity, that is supplied by hospitals.

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[1] Data from the 2006-2010 American Community Survey is used when data for 2009-2013 is unavailable.

[2] Massachusetts Department of Public Health, Massachusetts Births 2013

[3] Massachusetts Department of Public Health, Massachusetts Births 2009

[4] The 1989 revision of the Standard Certificate of Live Birth was used to collect birth data from 2009 to mid-2011, whereas the 2003 revision of the Standard Certificate of Live Birth was used from mid-2011 to 2013. For consistency purposes, only overlapping indicators from the two sets of birth data were used in the analysis of this report.

The number of Portuguese speakers varies according to how the population is defined (see Table 1). Two text variables were used to define Portuguese-speaking subgroups: mother's birthplace and ancestry. Mothers who identified in their Ancestry text field any spelling variation for the following ancestries were included: Cape Verde, Brazil, Portugal, Azores or Madeira, and Angola. Mothers who identified their birthplace as Cape Verde, Brazil, Portugal, Azores or Madeira, Angola, and Other countries such as East Timor, Guinea Bissau, Macau, Senegal, Mozambique, Mauritius, and São Tomé Príncipe were also included in the analysis.[5] By combining these subgroups, the following mutually exclusive categories were created as the base cohort for this study: Brazilian mothers (n=9,497), Portuguese mothers (n=7,201), Cape Verdean mothers (n=5,615), Azorean & Madeirense mothers (n=603), Angolan mothers (n=118), and Other Portuguese-speaking mothers (n=214). White non-Hispanic mothers residing in Massachusetts who also gave birth during 2009 and 2013 were also included for comparison purposes (n=220,167).

The continuous socio-demographic variables, maternal age, BMI, and education were each aggregated into categories for purposes of statistical analysis.[6] Marital status was coded as a dichotomous variable. Maternal place of birth was categorized into U.S. and non-U.S. born. Information on the mother's language preference is collected from the mother at the time of birth and categorized into English and non-English languages (full detail can be found in Table 9).

The presence of maternal medical risk factors for the current pregnancy, such as chronic hypertension, previous infant with birth defects, or gestational diabetes, was dichotomized into having at least one risk factor and having none. Variables such as maternal tobacco use, intention of breastfeeding, complications during labor and delivery, as well as delivery by Cesarean section, were also dichotomized for our analysis (full detail can be found in Table 10).

Similarly, continuous variables describing infant characteristics such as birthweight and gestational age were also categorized for our analysis. Infants with a birthweight less than 2,500 grams (5.5 pounds) are categorized as low birthweight and infants born before the completion of the 37th week of gestation are categorized as preterm births. Abnormal conditions of newborns were also dichotomized into having at least one abnormal condition and having none (full detail can be found in Table 11).

In describing prenatal care characteristics, adequate prenatal care was dichotomized based on the Adequacy of Prenatal Care Utilization Index. Prenatal care site was categorized into Physician Office, Hospital Clinic, Community Health Center, and HMO and Other Facilities. Payment Source was categorized into Public, Private, and Self (full detail can be found in Table 12).

To test for statistical significance, we adopted the testing methods used by the National Center for Health Statistics (NCHS).[7] 95% confidence intervals for various health indicators among different subgroups were examined to check whether they overlapped, assuming a binomial distribution for events over 100 or a Poisson distribution for events less than 100.

[5] Not all mothers who identified their birthplace as one of the above countries share Portugal ancestry. One limitation of our method is that our base cohort may be an over-estimate of the number of Portuguese speakers.
[6] Due to the change in birth certificate, BMI data only available for mothers who gave birth from mid-2011 to 2013.
[7] Births: Final Data for 2002. National Vital Statistics Reports, Volume 52, Number 10. 114 pp. (PHS) 2004-1120.

Note to Readers

1. The population included in this report are mothers who self-identified their ethnicities as Cape Verdean, Brazilian, Portuguese, Azorean or Madeirense, and Angolan, as well as mothers who identified their birthplace as Cape Verde, Brazil, Portugal, Azores or Madeira, Angola, and Other countries such as East Timor, Guinea Bissau, Macau, Senegal, Mozambique, Mauritius, and São Tomé Príncipe.
2. Change in the collection of race/ethnicities: In the 1980 and 1990 U.S. Census, there were four mutually exclusive single-race categories that totaled 100 percent of the population: White, Black, American Indian and Alaskan Native (AIAN), and Asian and Pacific Islander. Starting in 2000, the Census changed its method of collecting race in order to comply with the Office of Management and Budget's *Revised Standards for the Collection and Tabulation of Race and Ethnicity Data.*[8] For the first time, respondents could mark all that applied of five race categories: White, Black or African American, AIAN, Asian, and Native Hawaiian and Other Pacific Islander. They could also select "Some other race". In addition, respondents could also select a single ancestry or report multiple ancestries as well. This change has made the tabulation and reporting of race complex; from one race alone to a combination of six races including some other race.[9] This change also made it possible to examine various socioeconomic characteristics of Portuguese speakers by a combination of reported single and multiple ancestries.
3. Change in Birth Certificates: While the 1989 revision of the Standard Certificate of Live Birth was used to collect birth data from 2009 to mid-2011, the 2003 revision of the Standard Certificate of Live Birth was used from mid-2011 to 2013. For consistency purposes, only overlapping indicators from the two sets of birth data were used in the analysis of this report.
4. An *Advisory Task Force* comprised of representatives from the community of health service providers to Portuguese-speaking populations and researchers familiar with the six subgroups of Portuguese-speaking mothers was formed to provide advisory support to this project. Specifically, the Task Force provided guidance on which specific subgroups to examine in order to provide the maximum amount of information to the intended audience of program planners, community advocates and policy makers.
5. The terms ancestry and ethnicity are used interchangeably in this report.

[8] Office of Management and Budget, Revised Standards for the Collection and Tabulation of Race and Ethnicity Data, 1997.
[9] There are a total of 63 race and ethnicity categories defined by the Office of Management and Budget.

I. Massachusetts Population Data, 2006-2010

Table 1. Number of Portuguese Speakers by Birthplace, Ancestry and Language,
Massachusetts: 2009-2013

	Birthplace	Ancestry		Portuguese Language*
		People Reporting Single Ancestry	People Reporting Multiple Ancestry	
Brazil/Brazilian	62,957	57,609	9,853	
Portugal/Portuguese	58,657	172,411	139,961	
Cape Verde/ Cape Verdean	22,555	44,922	13,660	
Total Portuguese Speaker**	**144,169**	**274,942**	**163,474**	**181,917**

Source: U.S. Census Bureau, 2009-2013 American Community Survey, 5-Year Estimates
*Language spoken at home by persons age 5 years and above.
**This number only includes Brazilians, Portuguese, and Cape Verdeans.

Table 2. Median Age by Sex for Portuguese Speakers by Ancestry,
United States: 2006-2010*

	Brazilian	Portuguese	Cape Verdean	United States
Total	**29.5**	**37.0**	**28.6**	**36.9**
Male	28.0	36.3	26.7	35.6
Female	31.0	37.6	30.7	38.1

Source: U.S. Census Bureau, 2006-2010 American Community Survey, Selected Population Tables
*2009-2013 American Community Survey, Selected Population Tables, is currently not available.

Table 3. Median Age by Sex for Portuguese Speakers by Ancestry,
Massachusetts: 2006-2010*

	Brazilian	Portuguese	Cape Verdean	Massachusetts
Total	**30.2**	**37.4**	**28.3**	**38.7**
Male	30.0	36.0	26.7	37.3
Female	30.4	38.7	29.3	39.9

Source: U.S. Census Bureau, 2006-2010 American Community Survey, Selected Population Tables
*2009-2013 American Community Survey, Selected Population Tables, is currently not available.

Table 4. Top Ten Cities and Towns for Foreign Born Portuguese Speakers by Birthplace,
Cities/Towns in Massachusetts: 2009-2013

Cities/Towns*	Total Foreign Born	Brazil	Portugal	Cape Verde	Total PS**	Percent of PS***
Massachusetts	*991,698*	*62,957*	*58,657*	*22,555*	*144,169*	*14.5%*
Fall River	16,918	1,363	11,429	450	13,242	78.3%
New Bedford	18,860	469	10,298	2,292	13,059	69.2%
Boston	166,951	2,958	803	6,660	10,421	6.2%
Brockton	23,214	1,464	612	8,142	10,218	44.0%
Framingham	18,440	5,979	95	7	6,081	33.0%
Everett	17,353	4,716	265	386	5,367	30.9%
Taunton	6,389	488	3,973	276	4,737	74.1%
Somerville	19,281	2,945	1,547	89	4,581	23.8%
Lowell	26,699	2,660	1,548	153	4,361	16.3%
Malden	25,386	3,839	386	132	4,357	17.2%

Source: U.S. Census Bureau, 2009-2013 American Community Survey, 5-Year Estimates
*Sorted by Total Portuguese Speakers count.
**The total number of Portuguese Speakers born in Brazil, Portugal, and Cape Verde.
***The percent of Portuguese Speakers among Total Foreign Born residents.
Note: Margins of error not shown.

Table 5. Foreign Born Portuguese Speakers by Birthplace,
New England States: 2009-2013

State*	Total Foreign Born	Brazil	Portugal	Cape Verde	Total PS**	Percent of PS***
Massachusetts	*991,698 (7)*	*62,957 (2)*	*58,657 (1)*	*22,555 (1)*	*144,169 (1)*	*11.5%*
Connecticut	487,187 (18)	15,557 (6)	12,699 (6)	994 (4)	29,250 (6)	6.0%
Rhode Island	137,959 (35)	1,532 (26)	16,113 (4)	7,339 (2)	24,984 (7)	18.1%
New Hampshire	71,555 (41)	2,058 (22)	1,091 (12)	12 (21)	3,161 (19)	4.4%
Maine	45,285 (44)	377 (42)	184 (26)	0 (25)	561 (39)	1.2%
Vermont	25,590 (46)	220 (44)	106 (34)	2 (23)	328 (43)	1.3%

Source: U.S. Census Bureau, 2009-2013 American Community Survey, 5-Year Estimates.
*Sorted by Total Portuguese Speaker Count.
**The total number of Portuguese Speakers born in Brazil, Portugal, and Cape Verde.
***The percent of Portuguese Speakers among Total Foreign Born residents.
Note: Margins of error not shown.
Rank among U.S. states shown in parentheses.

Table 6. Income Characteristics by Ancestry, Massachusetts: 2006-2010*				
	Brazilian	**Portuguese**	**Cape Verdean**	**Massachusetts**
Per Capita Income in the Past 12 months**	19,896	26,776	17,832	**$33,966**
Median Household Income	48,962	56,744	43,760	**$64,509**
Mean Household Income	59,111	69,888	56,173	**$85,897**

Source: U.S. Census Bureau, 2006-2010 American Community Survey, 5-Year Estimates
*2009-2013 American Community Survey, Selected Population Tables, is currently not available.
**In 2010 inflation-adjusted dollars.

Table 7. Educational Attainment by Ancestry Ages 25 Years and Above, Massachusetts: 2006-2010*				
	Brazilian	**Portuguese**	**Cape Verdean**	**Massachusetts**
Less Than High School Diploma	23.7%	26.1%	30.9%	**11.3%**
High School Graduate (includes equivalency)	45.1%	32.9%	33.0%	**26.7%**
Some College or Associate's Degree	16.9%	22.0%	22.1%	**23.6%**
Bachelor's Degree	11.8%	13.4%	8.9%	**21.9%**
Graduate or Professional Degree	2.6%	5.7%	5.0%	**16.4%**

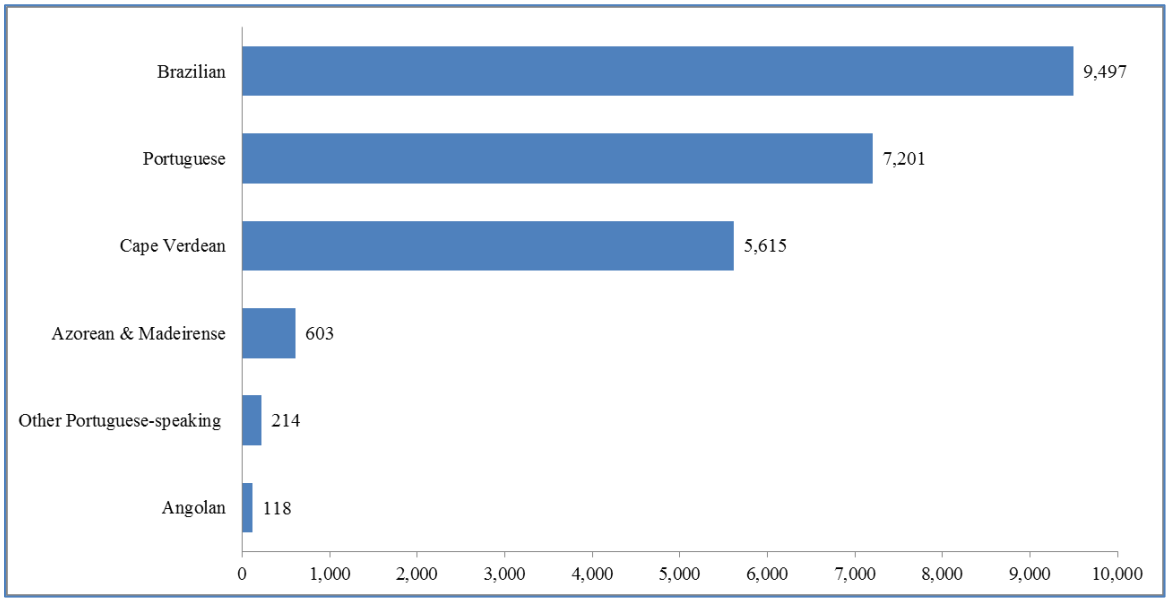
Source: U.S. Census Bureau, 2006-2010 American Community Survey, Selected Population Tables
*2009-2013 American Community Survey, Selected Population Tables, is currently not available.

Table 8. Poverty Level by Ancestry, Massachusetts: 2006-2010*				
Living below Poverty	**Brazilian**	**Portuguese**	**Cape Verdean**	**Massachusetts**
Individuals	10.0%	9.4%	19.7%	**10.5%**
Families	7.8%	7.0%	18.1%	**7.5%**

Source: U.S. Census Bureau, 2006-2010 American Community Survey, Selected Population Tables
*2009-2013 American Community Survey, Selected Population Tables, is currently not available.

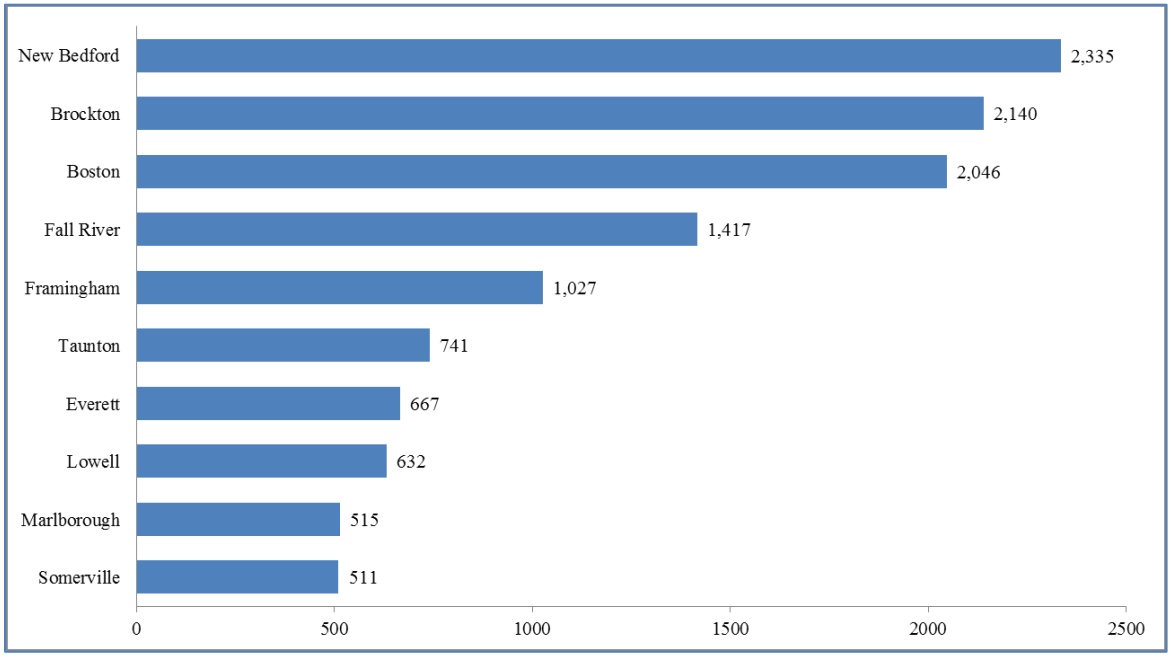
II. Birth Indicators, 2009-2013

Figure 1. Number of Births by Portuguese-speaking Mothers,
Massachusetts: 2009-2013



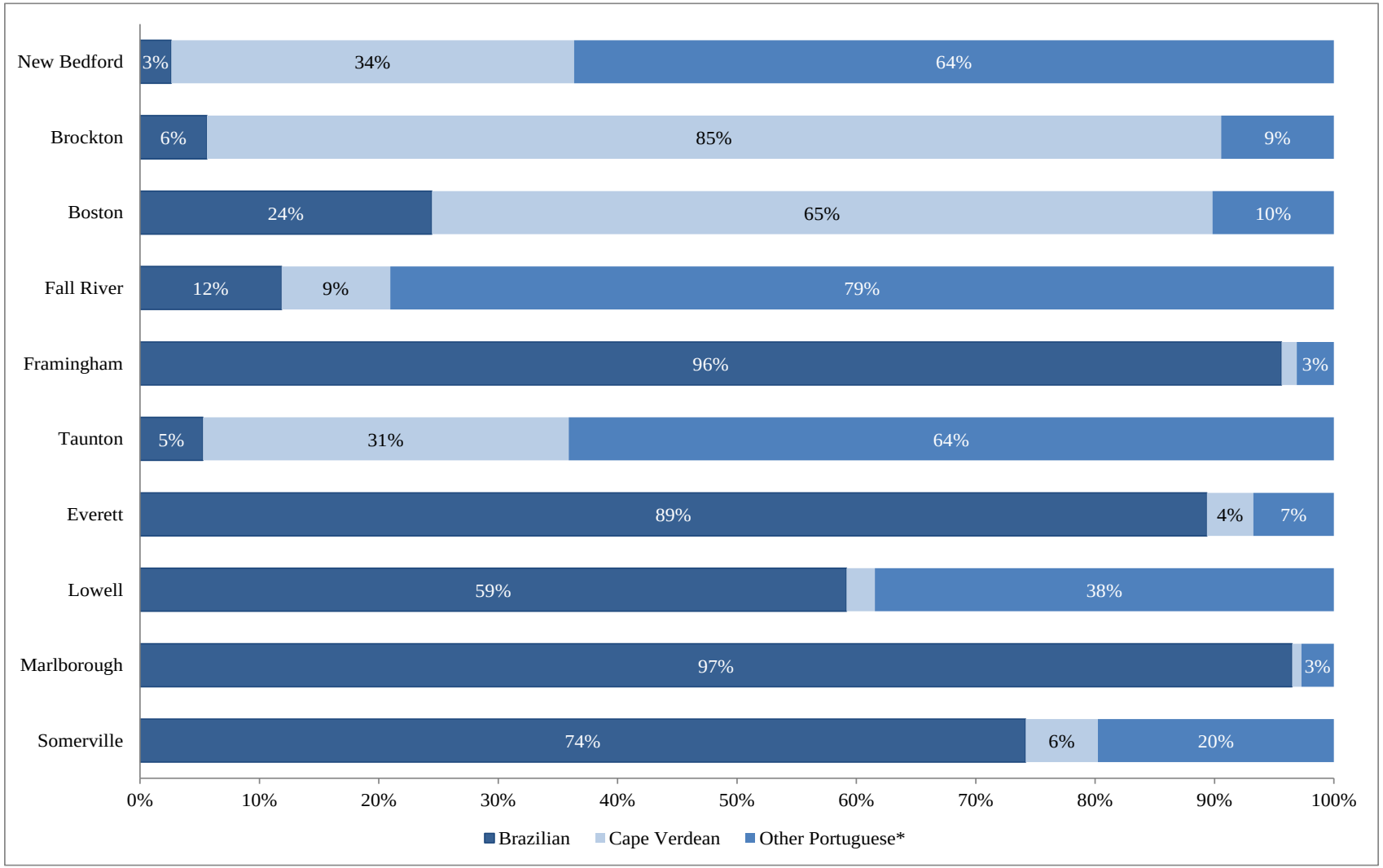
Source: Massachusetts Department of Public Health, ODMOA
Total N= 23,248

Figure 2. Number of Births from Portuguese-speaking Mothers,
Selected Communities, Massachusetts: 2009-2013



Source: Massachusetts Department of Public Health, ODMOA

Figure 3. Percentage of Births from Portuguese-speaking Mothers,
Selected Communities, Massachusetts: 2009-2013



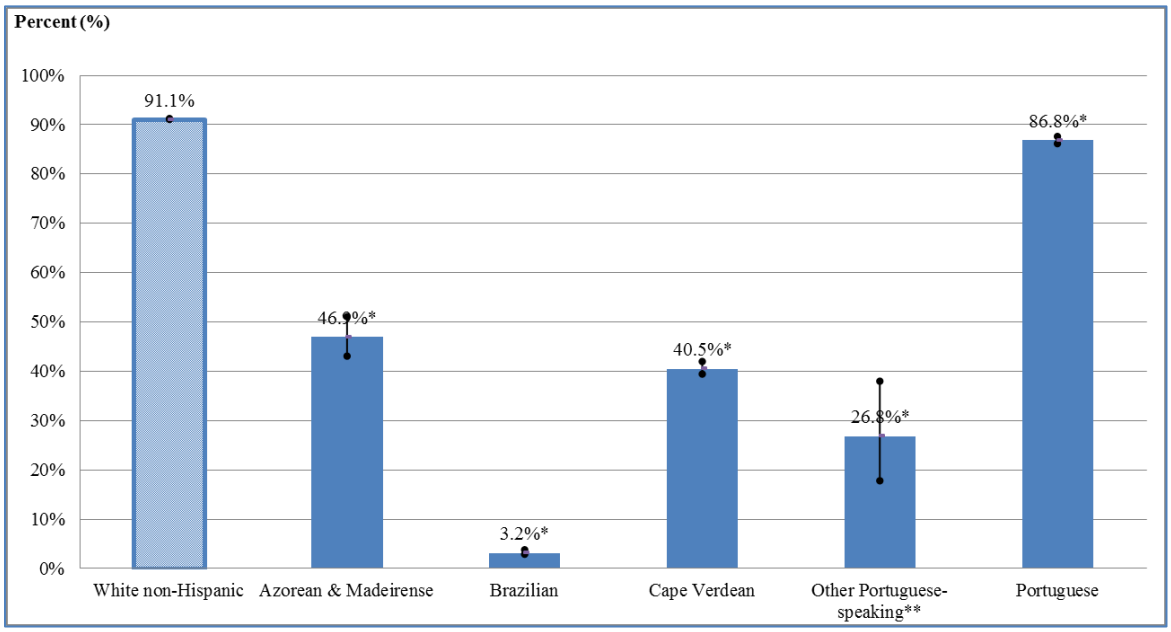
Source: Massachusetts Department of Public Health, ODMOA
*Birth from Portuguese, Angolan, and Azorean & Madeirense mothers were combined with births from Other Portuguese-speaking mothers due to small numbers (n<5).

Table 9. Maternal Demographic Characteristics by Subgroup, Massachusetts: 2009-2013

	Angolan	Azorean & Madeirense	Brazilian	Cape Verdean	Other Portuguese-speaking	Portuguese	White non-Hispanic
Birthplace							
U.S.	<5	283	300	2,273	89	6,250	200,450
Other	118	320	9,197	3,342	125	951	19,717
Maternal Age (years)							
<20	6	17	246	576	10	423	6,733
20-34	70	447	7,224	4,297	153	5,609	157,639
>35	42	139	2,027	742	51	1,169	55,791
Body Mass Index Levels							
<18.5	<5	14	182	160	5	172	3,970
18.5-24.9	40	135	2,557	1,602	26	2,195	63,935
25.0- 29.9	20	75	1,284	859	22	1,287	26,872
>30.0	11	55	689	535	5	1,107	20,292
Education Attainment							
≤ High School	59	267	6,189	2,825	68	2,321	40,226
Some College	30	136	1,495	1,248	48	1,980	43,631
College+	19	161	1,335	694	85	2,013	123,318
Marital Status							
Married	89	467	7,602	3,358	148	5,758	185,279
Not married	29	136	1,895	2,257	66	1,443	34,888
Language Preference							
English	77	544	4,235	3,944	171	6,893	208,426
Other	41	59	5,262	1,671	43	308	11,741

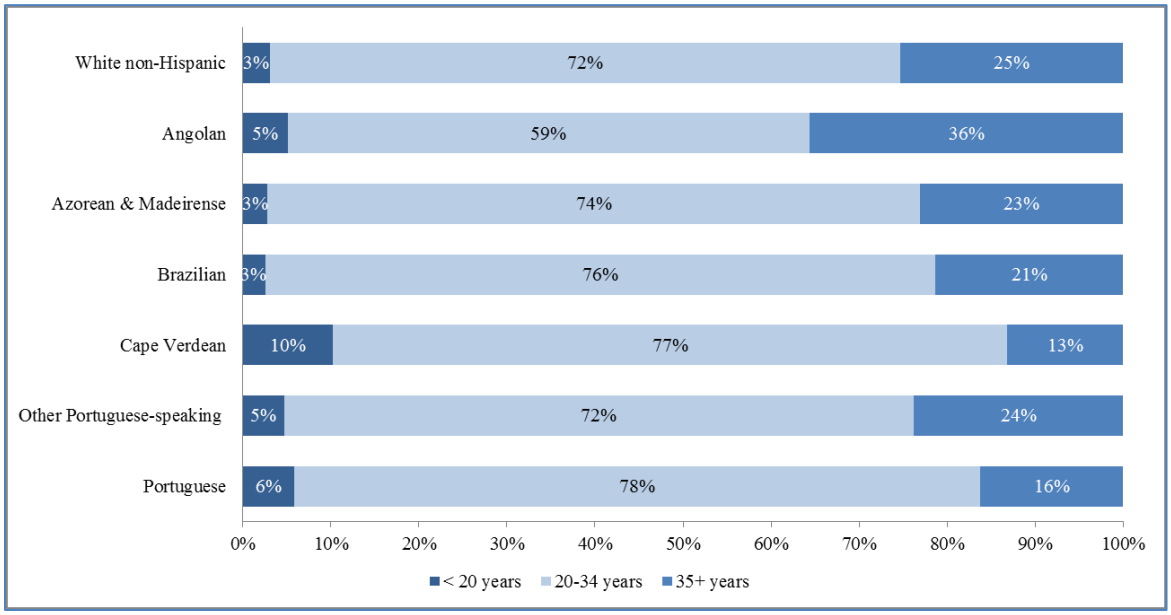
Source: Massachusetts Department of Public Health, ODMOA
Small numbers not shown (n<5)

Figure 4. U.S. Nativity
among Portuguese-speaking Mothers and White non-Hispanic Mothers,
Massachusetts: 2009-2013



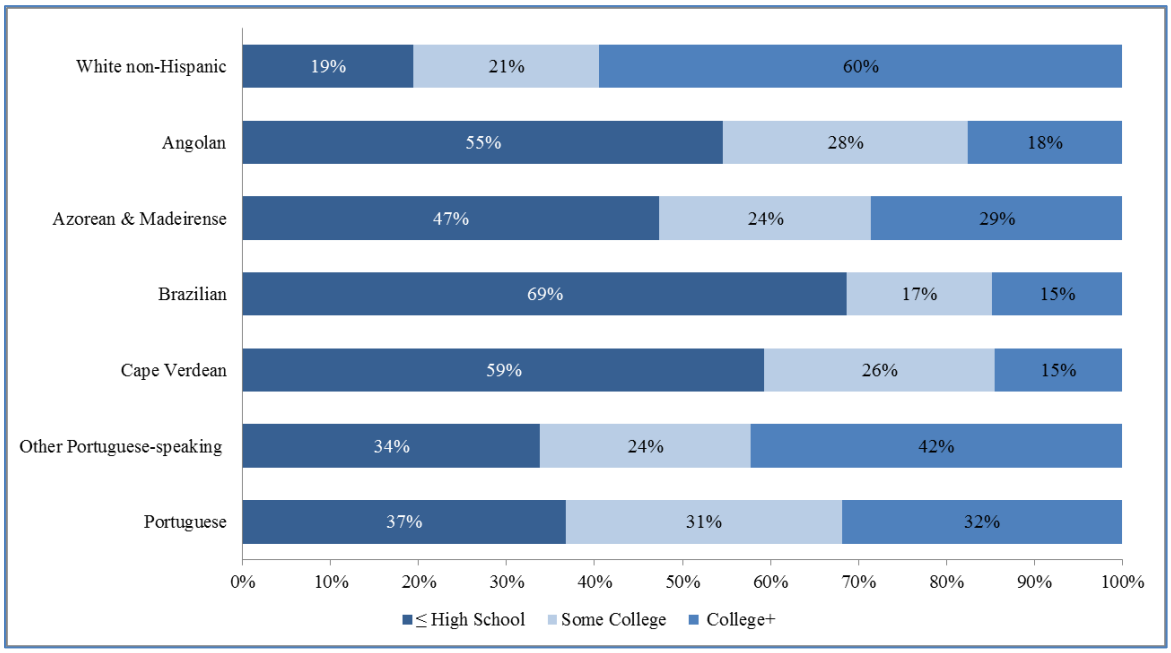
Source: Massachusetts Department of Public Health, ODMOA (full detail can be found in Table 9 above)
*Percentage statistically different from White non-Hispanic mothers.
**Angolan mothers were combined with Other Portuguese-speaking mothers for this figure due to small numbers (n<5).
Note: High-low lines with oval arrows denote the 95% Confidence Interval around percentages.

Figure 5. Age Distribution
among Portuguese-speaking Mothers and White non-Hispanic Mothers,
Massachusetts: 2009-2013



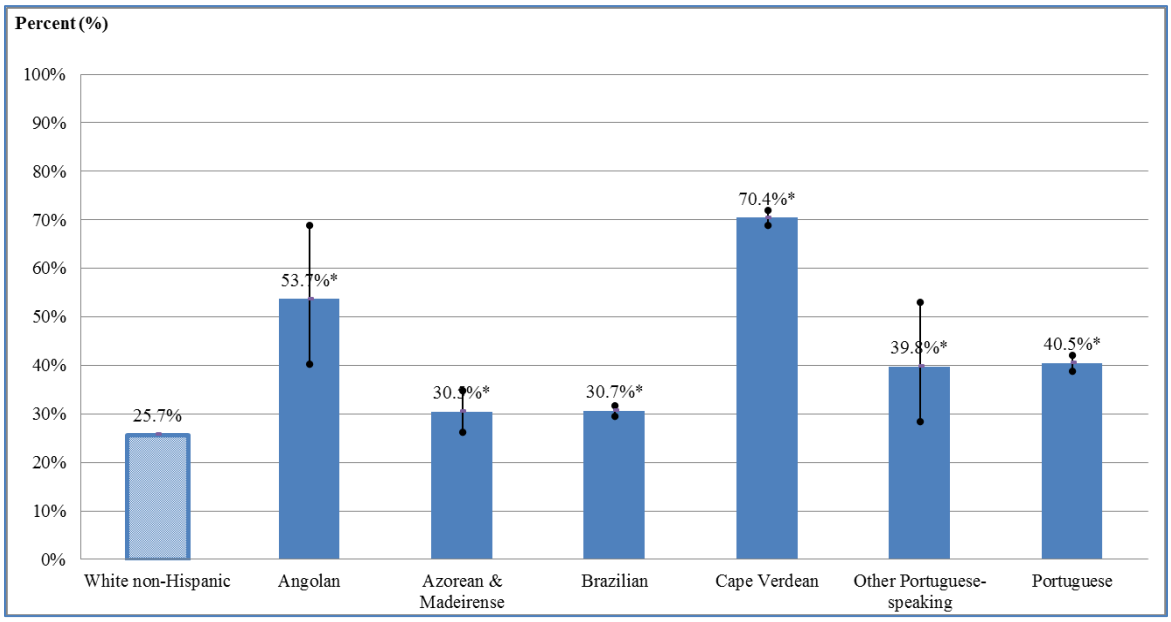
Source: Massachusetts Department of Public Health, ODMOA (full detail can be found in Table 9 above)

Figure 6. Educational Attainment among Portuguese-speaking Mothers and White non-Hispanic Mothers, Ages 20 years and Above,
Massachusetts: 2009-2013



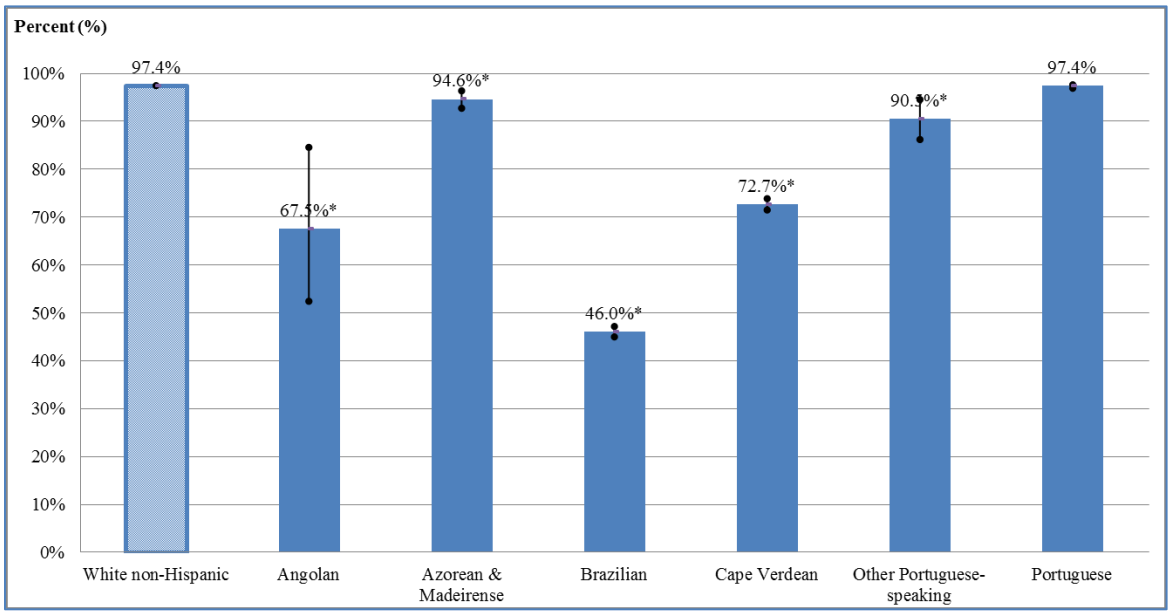
Source: Massachusetts Department of Public Health, ODMOA (full detail can be found in Table 9 above)

Figure 7. Non-married Status among Portuguese-speaking Mothers and White non-Hispanic Mothers,
Massachusetts: 2009-2013



Source: Massachusetts Department of Public Health, ODMOA (full detail can be found in Table 9 above)
*Percentage statistically different from White non-Hispanic mothers.
Note: High-low lines with oval arrows denote the 95% Confidence Interval around percentages.

Figure 8. Preference for English among Portuguese-speaking Mothers and White non-Hispanic Mothers,
Massachusetts: 2009-2013



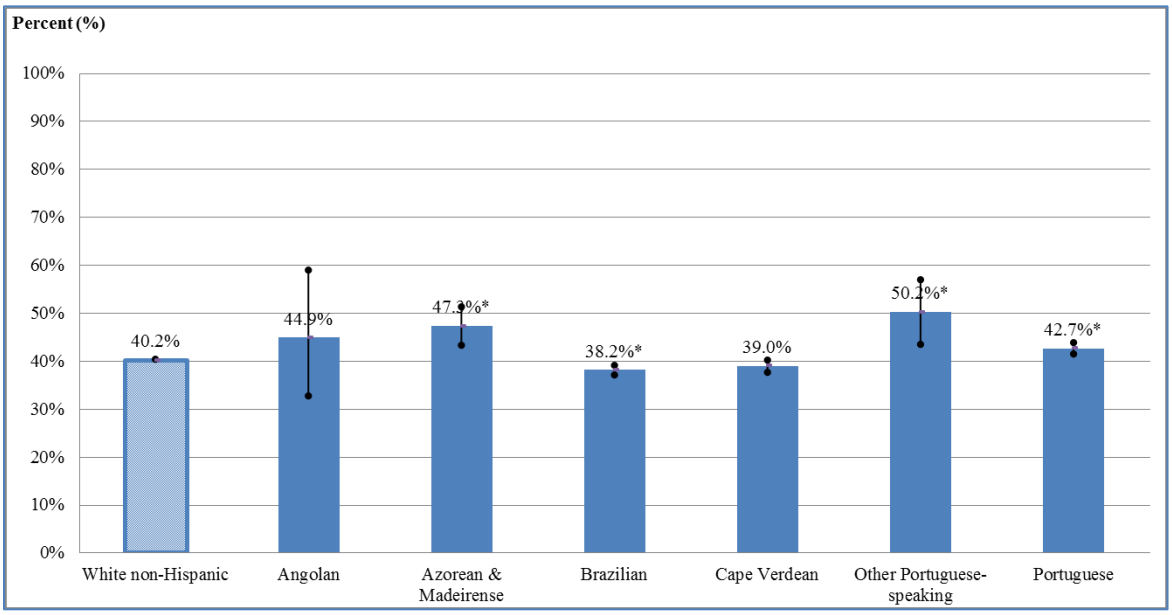
Source: Massachusetts Department of Public Health, ODMOA (full detail can be found in Table 9 above)
*Percentage statistically different from White non-Hispanic mothers.
Note: High-low lines with oval arrows denote the 95% Confidence Interval around percentages.

Table 10. Maternal Risk Factors by Subgroup, Massachusetts: 2009-2013

	Angolan	Azorean & Madeirense	Brazilian	Cape Verdean	Other Portuguese-speaking	Portuguese	White non-Hispanic
Maternal Risk Factors							
≥ One Risk Factor	53	284	3,596	2,184	107	3,063	87,875
No Risk Factors	65	316	5,826	3,417	106	4,112	130,697
Gestational Diabetes	9	39	519	235	21	453	9,622
Obesity Prior to Pregnancy	11	55	689	535	5	1,107	20,292
Maternal Tobacco Use							
Yes	<5	62	176	374	15	933	18,169
No	115	531	9,167	5,130	195	6,113	199,697
Breastfeeding							
Yes	107	383	8,897	4,750	168	4,486	175,154
No	11	220	600	865	46	2,715	45,013
Complications of Labor & Delivery							
Yes	25	244	3,469	1,644	76	2,258	70,485
No	93	356	5,966	3,960	137	4,917	148,196
Cesarean Delivery							
Yes	42	228	4,054	1,769	74	2,624	72,066
No	76	375	5,443	3,846	140	4,577	148,101

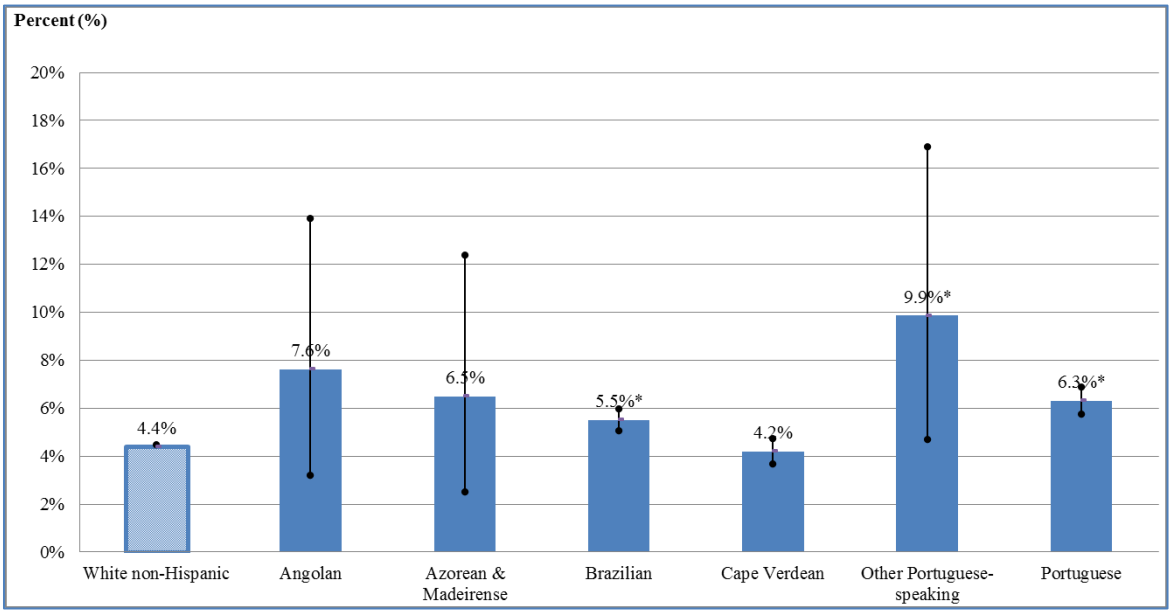
Source: Massachusetts Department of Public Health, ODMOA
Small numbers not shown (n<5)

Figure 9. Maternal Risk Factors[10]
among Portuguese-speaking Mothers and White non-Hispanic Mothers,
Massachusetts: 2009-2013



Source: Massachusetts Department of Public Health, ODMOA (full detail can be found in Table 10 above)
*Percentage statistically different from White non-Hispanic mothers.
Note: High-low lines with oval arrows denote the 95% Confidence Interval around percentages.

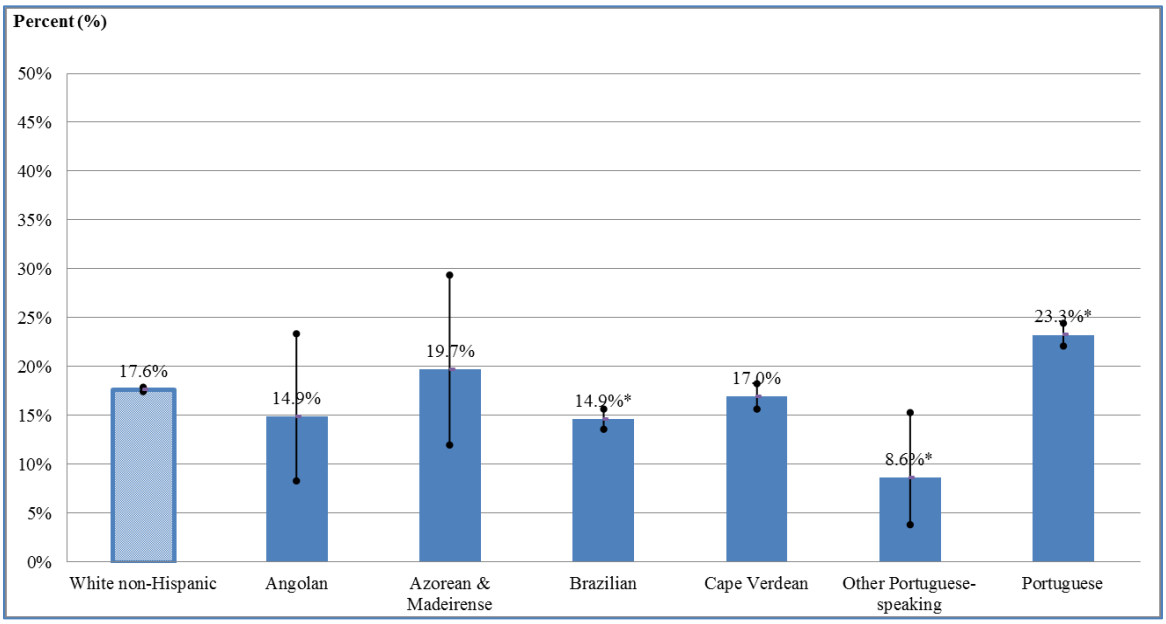
Figure 10. Gestational Diabetes
among Portuguese-speaking Mothers and White non-Hispanic Mothers,
Massachusetts: 2009-2013



Source: Massachusetts Department of Public Health, ODMOA (full detail can be found in Table 10 above)
*Percentage statistically different from White non-Hispanic mothers.
Note: High-low lines with oval arrows denote the 95% Confidence Interval around percentages.

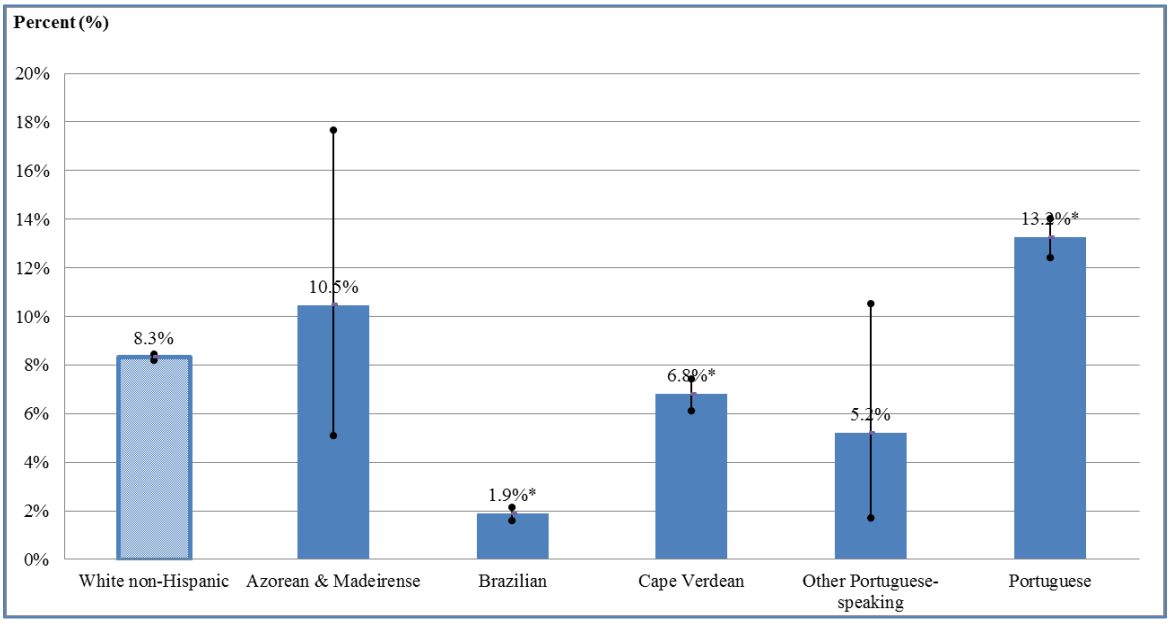
[10] Maternal risk factors are listed in the Hospital Worksheet (see Appendix).[10]

Figure 11. Obesity Prior to Pregnancy among Portuguese-speaking Mothers and White non-Hispanic Mothers, Massachusetts: 2011-2013



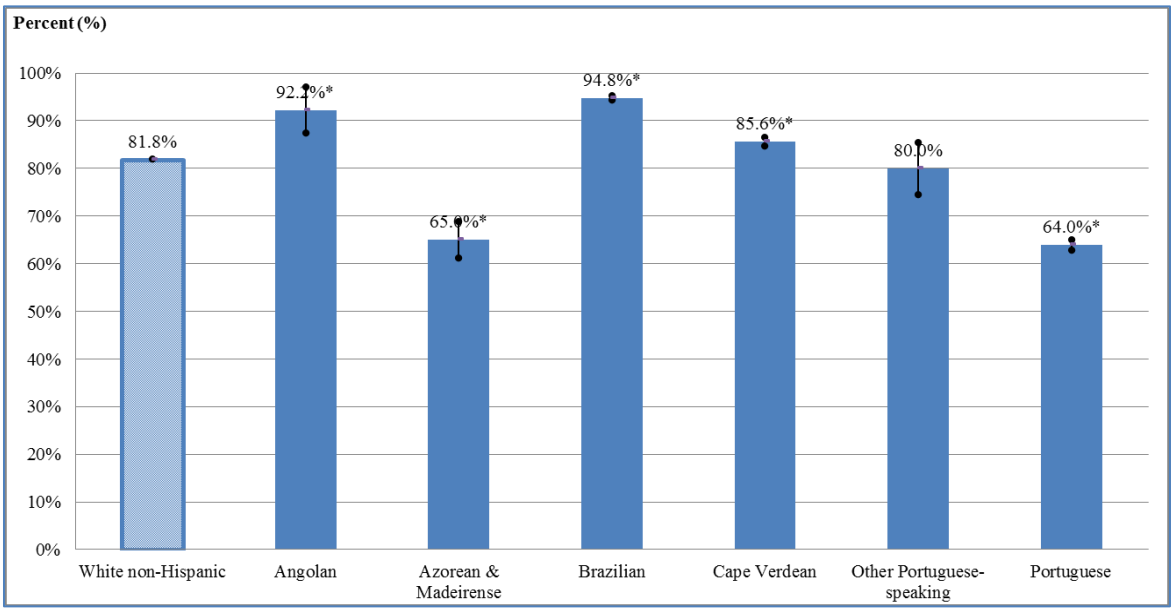
Source: Massachusetts Department of Public Health, ODMOA (full detail can be found in Table 10 above)
*Percentage statistically different from White non-Hispanic mothers.
Note: High-low lines with oval arrows denote the 95% Confidence Interval around percentages.

Figure 12. Maternal Tobacco Use among Portuguese-speaking Mothers and White non-Hispanic Mothers, Massachusetts: 2009-2013



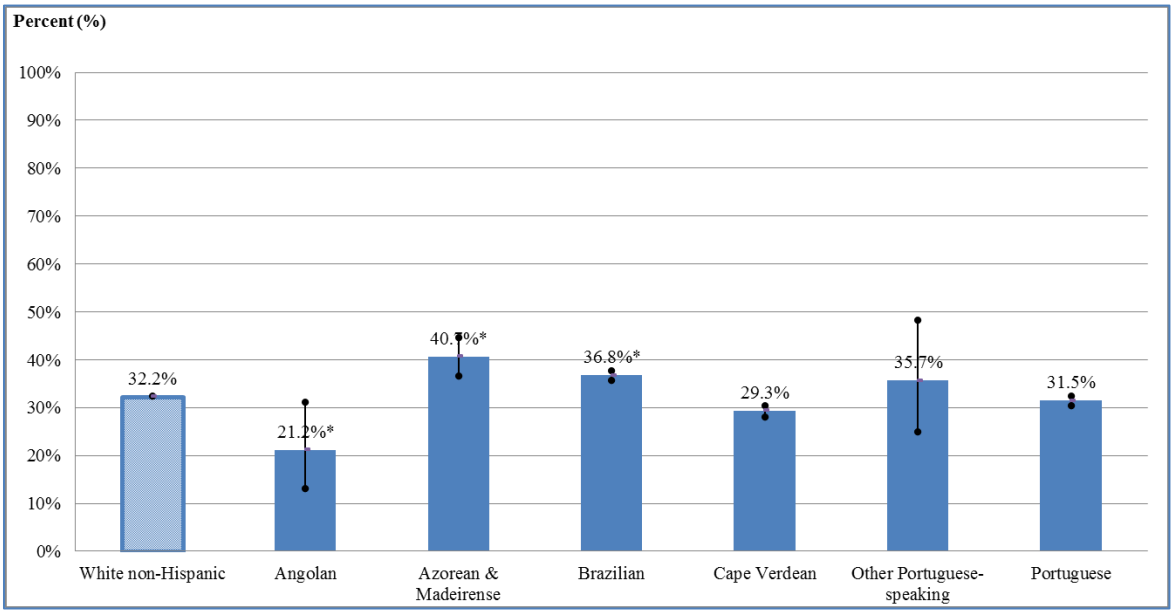
Source: Massachusetts Department of Public Health, ODMOA (full detail can be found in Table 10 above)
*Percentage statistically different from White non-Hispanic mothers.
**Angolan mothers were combined with Other Portuguese-speaking mothers for this figure due to small numbers (n<5).
Note: High-low lines with oval arrows denote the 95% Confidence Interval around percentages.

Figure 13. Breastfeeding among Portuguese-speaking Mothers and White non-Hispanic Mothers, Massachusetts: 2009-2013



Source: Massachusetts Department of Public Health, ODMOA (full detail can be found in Table 10 above)
*Percentage statistically different from White non-Hispanic mothers.
Note: High-low lines with oval arrows denote the 95% Confidence Interval around percentages.

Figure 14. Complications of Labor and Delivery[11] among Portuguese-speaking Mothers and White non-Hispanic Mothers, Massachusetts: 2009-2013



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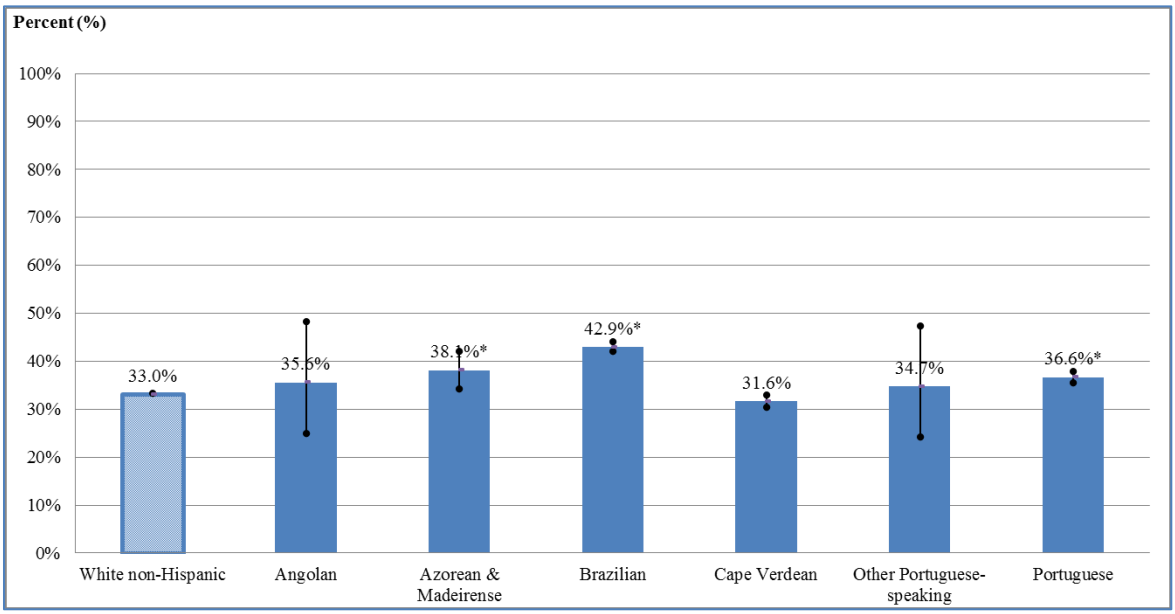
*Percentage statistically different from White non-Hispanic mothers.
Note: High-low lines with oval arrows denote the 95% Confidence Interval around percentages.

[11] Complications of labor and delivery for the current pregnancy are listed on the Hospital Worksheet (see Appendix).

Figure 15. Cesarean Deliveries among Portuguese-speaking Mothers and White non-Hispanic Mothers,
Massachusetts: 2009-2013



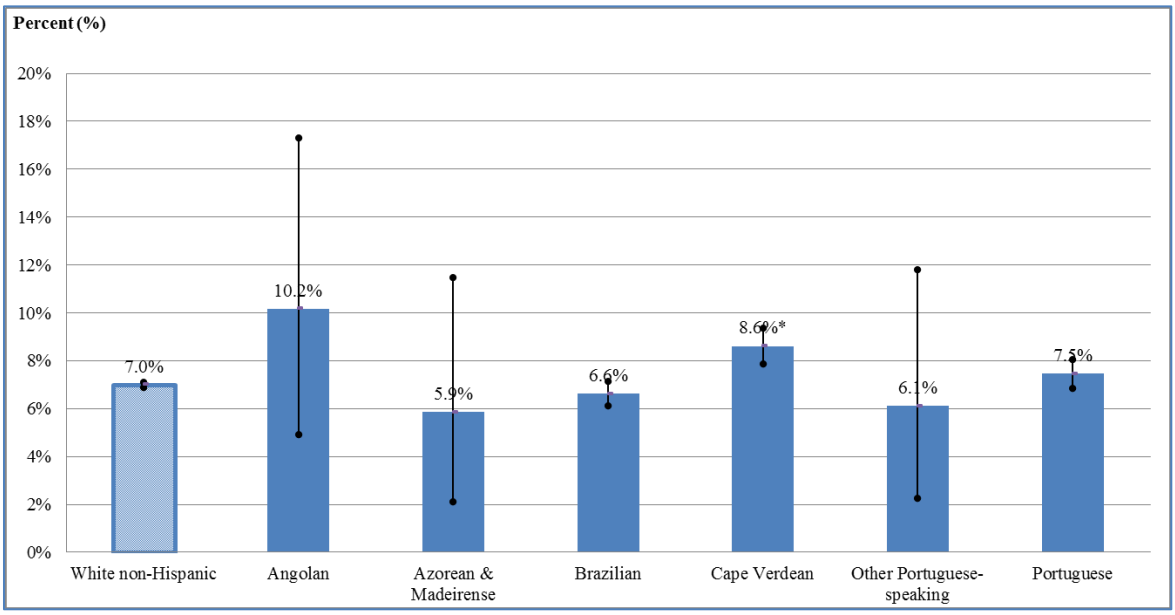
Source: Massachusetts Department of Public Health, ODMOA (full detail can be found in Table 10 above)
*Percentage statistically different from White non-Hispanic mothers.
Note: High-low lines with oval arrows denote the 95% Confidence Interval around percentages.

Table 11. Infant Characteristics by Subgroup, Massachusetts: 2009-2013

	Angolan	Azorean & Madeirense	Brazilian	Cape Verdean	Other Portuguese-speaking	Portuguese	White non-Hispanic
Number of births	118	603	9,497	5,615	214	7,201	220,167
Low Birthweight	12	35	626	483	13	536	15,330
Preterm Births	10	46	714	495	15	553	18,201
Abnormal Conditions							
Yes	12	95	1,387	966	46	1,665	38,757
No	104	506	8,034	4,599	166	5,512	179,834

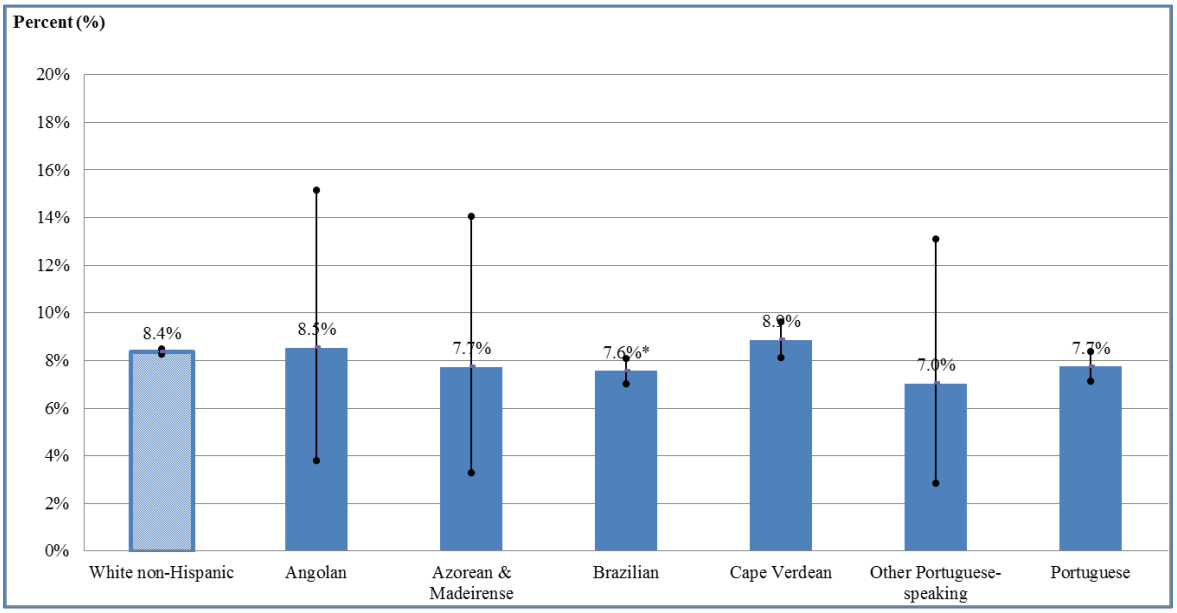
Source: Massachusetts Department of Public Health, ODMOA
Small numbers not shown (n<5)
Counts do not include missing values

Figure 16. Low Birthweight infants among Portuguese-speaking Mothers and White non-Hispanic Mothers,
Massachusetts: 2009-2013



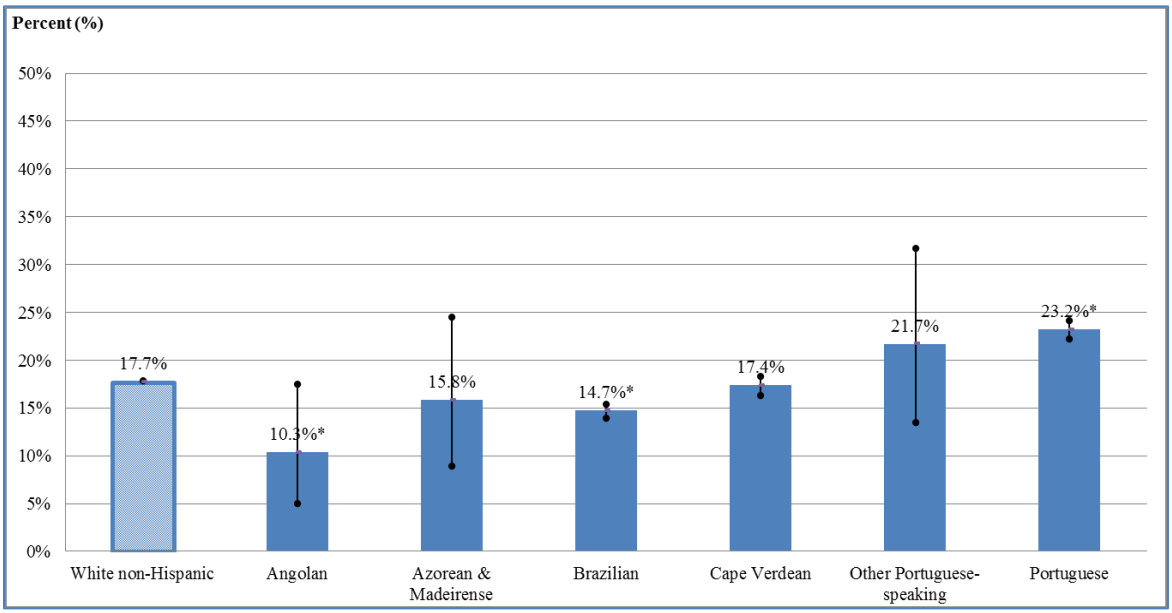
Source: Massachusetts Department of Public Health, ODMOA (full detail can be found in Table 11 above)
*Percentage statistically different from White non-Hispanic mothers.
Note: High-low lines with oval arrows denote the 95% Confidence Interval around percentages.

Figure 17. Preterm Births among Portuguese-speaking Mothers and White non-Hispanic Mothers,
Massachusetts: 2009-2013



Source: Massachusetts Department of Public Health, ODMOA (full detail can be found in Table 11 above)
*Percentage statistically different from White non-Hispanic mothers.
Note: High-low lines with oval arrows denote the 95% Confidence Interval around percentages.

Figure 18. Abnormal Conditions of Newborns[12]
among Portuguese-speaking Mothers and White non-Hispanic Mothers,
Massachusetts: 2009-2013



Source: Massachusetts Department of Public Health, ODMOA (full detail can be found in Appendix Table 11 above)
*Percentage statistically different from White non-Hispanic mothers.
Note: High-low lines with oval arrows denote the 95% Confidence Interval around percentages.

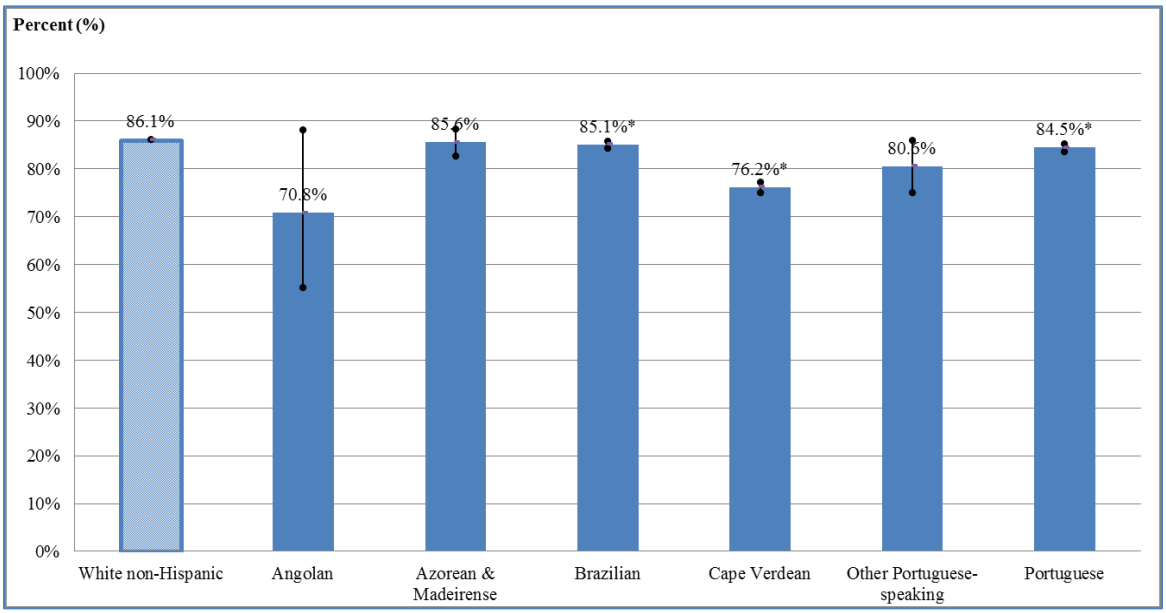
[12] Abnormal conditions are listed on the Hospital Worksheet (see Appendix).

Table 12. Prenatal Care Characteristics by Subgroup, Massachusetts: 2009-2013

	Angolan	Azorean & Madeirense	Brazilian	Cape Verdean	Other Portuguese-speaking	Portuguese	White non-Hispanic
Adequate Prenatal Care							
Yes	80	504	7,681	4,126	166	5,925	180,680
No	38	99	1,816	1,489	48	1,276	39,487
Prenatal Care Site							
Physician Office	45	493	5,702	3,289	143	6,200	170,608
Hospital Clinic	28	62	2,661	792	32	404	25,806
Community Health Center	40	18	847	1,397	22	181	6,036
HMO and Other Facilities	<5	15	104	34	10	116	7,680
Payment Source							
Public	87	206	7,222	3,968	77	2,830	51,108
Private	25	380	2,107	1,540	129	4,146	161,037
Self	<5	<5	39	34	<5	24	2,076

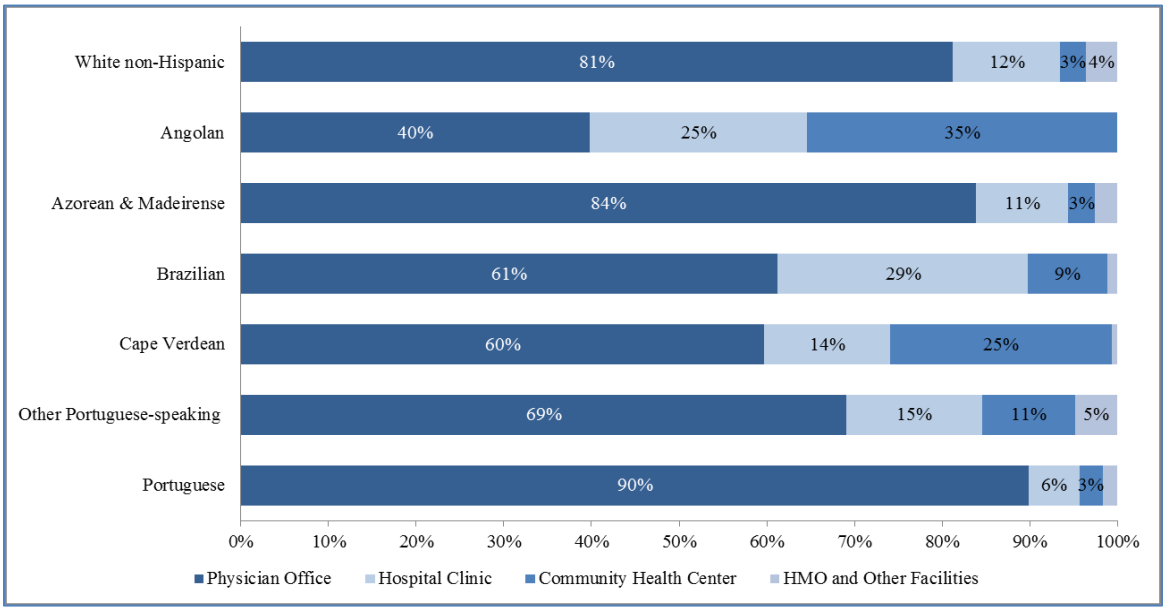
Source: Massachusetts Department of Public Health, ODMOA
Small numbers not shown (n<5)

Figure 19. Adequate Prenatal Care[13]
among Portuguese-speaking Mothers and White non-Hispanic Mothers,
Massachusetts: 2009-2013



Source: Massachusetts Department of Public Health, ODMOA (full detail can be found in Table 12 above)
*Percentage statistically different from White non-Hispanic mothers.
Note: High-low lines with oval arrows denote the 95% Confidence Interval around percentages.

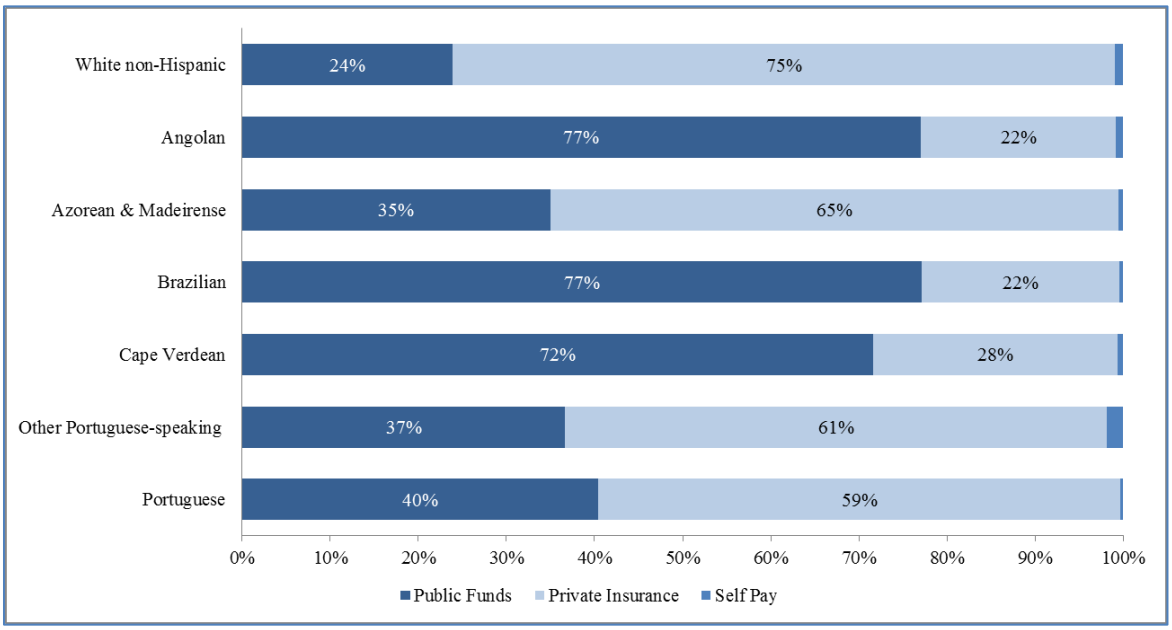
Figure 20. Site of Prenatal Care
among Portuguese-speaking Mothers and White non-Hispanic Mothers,
Massachusetts: 2009-2013



Source: Massachusetts Department of Public Health, ODMOA (full detail can be found in Table 12 above)

[13] The Adequate of Prenatal Care Utilization (APNCU) Index was used to classify the adequacy of prenatal care. More details can be found in Glossary.

Figure 21. Prenatal Care Payment Source[14] among Portuguese-speaking Mothers and White non-Hispanic Mothers, Massachusetts: 2009-2013



Source: Massachusetts Department of Public Health, ODMOA (full detail can be found in Table 12 above)
* The average percentage for all subgroups of Portuguese-speaking mothers who received public funds for their prenatal care is 63%.

[14] Payment source for prenatal care was derived from the Hospital Worksheet (see Appendix). Responses were aggregated into three categories: public (including Medicaid/MassHealth, Medicare, Healthy Start, CommonHealth, or other government source), private (including commercial indemnity plan, commercial manage care, or other private insurance), and self pay

Acknowledgments

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We wish to express our sincere gratitude to members of the *Birth from Portuguese-speaking Mothers Advisory Task Force* for their invaluable input in the development and review stages of this report: Eduardo Siqueira, University of Massachusetts Boston; Elisa Garibaldi, Cambridge Health Alliance; Milena Mello, Massachusetts Alliance of Portuguese Speakers.

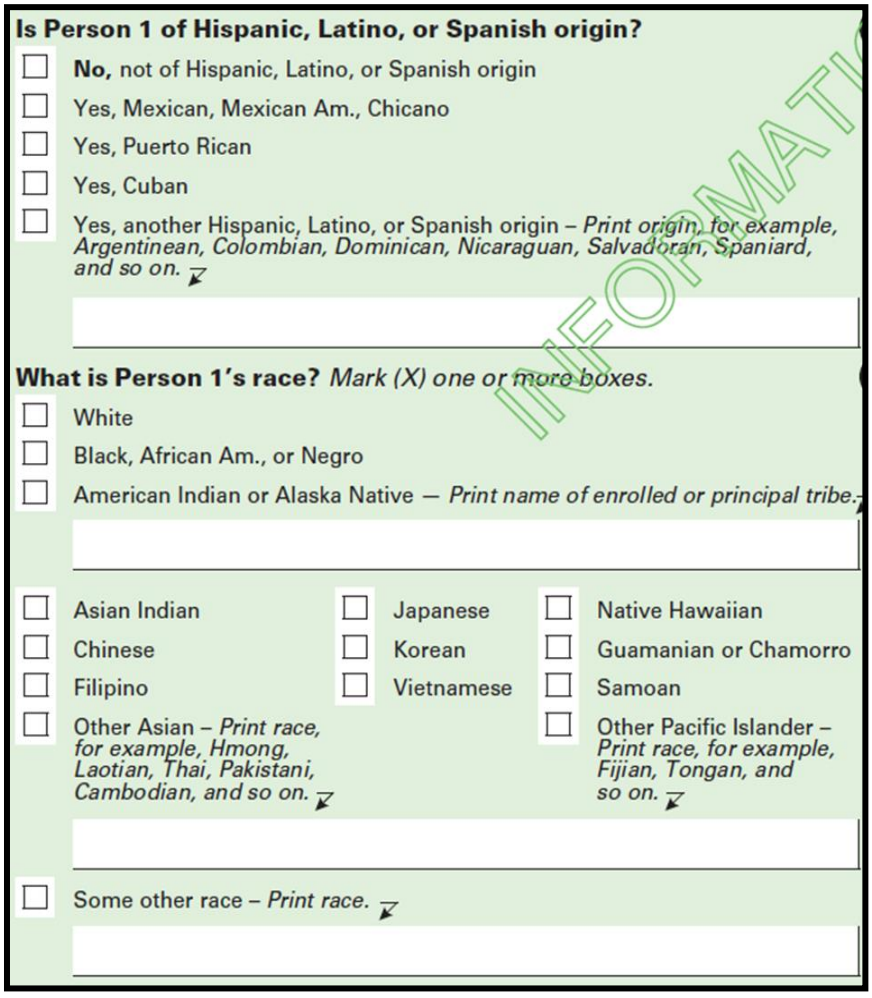
Special thanks also go to: Bruce Cohen, Former Deputy Director, Office of Data Management and Outcomes Assessment; Tom Land, Director, Office of Data Management and Outcomes Assessment, Georgia Simpson May, Former Director, Office of Health Equity, and Rodrigo Monterrey, Office of Health Equity.

APPENDICES

Self-Designation of Race and Ethnicity

The data in this report are taken from the American Community Survey and from the Massachusetts Birth Certificates. The "gold standard" in collecting data on race (and ethnicity/and tribal affiliation) is "self report," that is, asking individuals to identify their own race. This usually means that people are asked to either choose their race or races from a list or offer an alternative race (either spoken or written) which is not on the list. Other methods of race ascertainment include observation, informant, and surname. Because these methods are susceptible to racial stereotyping, they are not recommended.

2013 American Community Survey



Is Person 1 of Hispanic, Latino, or Spanish origin?

- ☐ **No,** not of Hispanic, Latino, or Spanish origin
- ☐ Yes, Mexican, Mexican Am., Chicano
- ☐ Yes, Puerto Rican
- ☐ Yes, Cuban
- ☐ Yes, another Hispanic, Latino, or Spanish origin – *Print origin, for example, Argentinean, Colombian, Dominican, Nicaraguan, Salvadoran, Spaniard, and so on.*

What is Person 1's race? *Mark (X) one or more boxes.*

- ☐ White
- ☐ Black, African Am., or Negro
- ☐ American Indian or Alaska Native — *Print name of enrolled or principal tribe.*
- ☐ Asian Indian
- ☐ Chinese
- ☐ Filipino
- ☐ Other Asian – *Print race, for example, Hmong, Laotian, Thai, Pakistani, Cambodian, and so on.*
- ☐ Japanese
- ☐ Korean
- ☐ Vietnamese
- ☐ Native Hawaiian
- ☐ Guamanian or Chamorro
- ☐ Samoan
- ☐ Other Pacific Islander – *Print race, for example, Fijian, Tongan, and so on.*
- ☐ Some other race – *Print race.*

Massachusetts Certificate of Live Birth - Parent Worksheet

MOTHER'S RACE

- **Standard Certificate of Live Birth (1989 revision)**

MOTHER'S RACE Please mark the *one* category that *best describes* the mother's race:				
☐ White	☐ Black	☐ Asian/ Pacific Islander	☐ American Indian	☐ Other (specify):

- **Standard Certificate of Live Birth (2003 revision)**

Mother/Parent Race: Information about race of parents helps researchers understand more about birth rates, health conditions and other factors relating to race that may affect birth outcomes and health service needs in Massachusetts communities.

Please indicate your race(s). *You may choose more than one.*

☐ American Indian/Alaska Native (specify tribal nation(s)): _____	☐ Hispanic/Latina/Other (specify): _____
☐ Asian	☐ Native Hawaiian
☐ Black	☐ Samoan
☐ Guamanian or Chamorro	☐ White
☐ Hispanic/Latina/Black	☐ Other Pacific Islander (specify): _____
☐ Hispanic/Latina/White	☐ Other race not listed (specify):

MOTHER'S ANCESTRY

- **Standard Certificate of Live Birth (1989 revision)**

MOTHER'S ANCESTRY Please mark the *one* category that *best describes* the mother's ancestry or ethnic heritage:

HISPANIC/LATINA

1 ☐Puerto Rican
2 ☐Dominican
3 ☐Mexican
4 ☐Cuban
5 ☐Colombian
6 ☐Salvadoran
7 ☐Other Central American(specify): _____
8 ☐Other South American (specify): _____
9 ☐Other Hispanic/Latina (specify): _____

ASIAN/ PACIFIC ISLANDER

10☐Chinese
11☐Vietnamese
12☐Cambodian
13☐Asian Indian
14☐Korean
15☐Filipino
16☐Japanese
17☐Laotian
18☐Pakistani
19☐Thai
20☐Hawaiian
21☐Other Asian/Pacific Islander (specify): _____

PORTUGUESE SPEAKING

22☐Cape Verdean
23☐Brazilian
24☐Other Portuguese (specify): ↓

WEST INDIAN/CARIBBEAN ISLANDER

25☐Haitian
26☐Jamaican
27☐Barbadian
28☐Other West Indian/ Caribbean Islander (specify): _____

AFRICAN/AFRICAN AMERICAN

29☐African-American/ Afro-American
30☐Nigerian
31☐Other African (specify): _____

MIDDLE EASTERN

32☐Lebanese
33☐Iranian
34☐Israeli
35☐Other Middle Eastern (specify): _____

AMERICAN ANCESTRY

36☐Native American/ American Indian (specify tribe/affiliation): _____
37☐American

EUROPEAN and OTHER ancestries

38☐European (specify): _____
39☐Other (specify): _____

- **Standard Certificate of Live Birth (2003 revision)**

Mother/Parent Ethnicity: Information about ethnicities of parents help researchers understand more about genetic conditions, cultures, and geographic locations of existing and new ethnic communities that may affect the availability of quality prenatal care services, outcomes of pregnancies, and future health needs of young children and their families.

Please indicate your ethnic background(s). *You may choose more than one.*

☐ African (specify): _____
☐ African-American
☐ American
☐ Asian Indian
☐ Brazilian
☐ Cambodian
☐ Cape Verdean
☐ Caribbean Islander (specify): _____
☐ Chinese
☐ Colombian
☐ Cuban
☐ Dominican
☐ European (specify): _____
☐ Filipino
☐ Guatemalan
☐ Haitian
☐ Honduran
☐ Japanese
☐ Korean
☐ Laotian
☐ Mexican, Mexican American, Chicano
☐ Middle Eastern (specify): _____
☐ Native American (specify tribal nation(s)): _____
☐ Portuguese
☐ Puerto Rican
☐ Russian
☐ Salvadoran
☐ Vietnamese
☐ Other Asian (specify): _____
☐ Other Central American (specify): _____
☐ Other Pacific Islander (specify): _____
☐ Other Portuguese (specify): _____
☐ Other South American (specify): _____
☐ Other ethnicity(ies) not listed (specify): _____

MOTHER'S LANGUAGE PREFERENCE

- **Standard Certificate of Live Birth (1989 revision)**

MOTHER'S LANGUAGE PREFERENCE	In what language does the mother prefer to read or discuss health-related materials?	
1☐English	6☐Haitian Creole	11☐Russian
2☐American Sign Language (ASL)	7☐Hmong	12☐Spanish
3☐Arabic	8☐Lao	13☐Vietnamese
4☐Cambodian	9☐Mandarin	14☐Other (specify):
5☐Cantonese	10☐Portuguese	

- **Standard Certificate of Live Birth (2003 revision)**

Mother/Parent Language Preference: Information about the language in which parents prefer to speak or that they find easiest to read helps public health programs and medical providers be better prepared with appropriate translators and translated information. Identifying neighborhoods and communities with many foreign-speaking residents helps to place translation staff and materials where they are most needed.

In what language do you *prefer* to *speak* when talking about health questions or concerns?
In what language do you *prefer* to *read* health-related materials?

English	☐Speak ☐Read	**Somali**	☐Speak ☐Read
Spanish	☐Speak ☐Read	**Arabic**	☐Speak ☐Read
Portuguese	☐Speak ☐Read	**Albanian**	☐Speak ☐Read
Cape Verdean Creole	☐Speak ☐Read	**Chinese**	☐Speak ☐Read
Haitian Creole	☐Speak ☐Read	(specify dialect): _____	
Khmer	☐Speak ☐Read	**Russian**	☐Speak ☐Read
Vietnamese	☐Speak ☐Read	**American Sign Language**	☐Speak
Cambodian	☐Speak ☐Read	**Other**	☐Speak ☐Read
		(specify): _____	

Massachusetts Certificate of Live Birth - Hospital Worksheet

RISK FACTORS FOR THIS PREGNANCY

- **Standard Certificate of Live Birth (1989 revision)**

RISK FACTORS FOR THIS PREGNANCY *Check all that apply:*

1☐Unused Field
2☐Acute or Chronic Lung Disease
3☐Anemia (hct <30, hgb <10)
4☐Cardiac Disease
5☐Diabetes (Gestational)
6☐Diabetes (Other)
7☐Eclampsia
8☐Genital Herpes
9☐Hydramnios/Oligohydramnios
10☐Hemoglobinopathy
11☐Hypertension (Chronic)
12☐Hypertension (Pregnancy Related)
13☐Hepatitis B Carrier (HBsAg positive)
14☐Incompetent Cervix
15☐Lupus Erythematosus
16☐Previous infant with birth defect

00☐No risk factors for this pregnancy

17☐Previous infant 4000+ grams
18☐Previous preterm or SGA infant
19☐Renal Disease
20☐Rh sensitization
21☐Rubella infection during pregnancy
22☐Seizure disorder
23☐Sexually Transmitted Disease (specify):
_____
24☐Sickle Cell Anemia
25☐Uterine bleeding
26☐Weight gain/loss inappropriate for mother

27☐*(new item)* MATERNAL PHENYLKETONURIA (PKU)

28☐Other (specify other risk factors such as tobacco or substance abuse, social, domestic and environmental risk factors, etc.)_____
_____
_____

- **Standard Certificate of Live Birth (2003 revision)**

RISK FACTORS for this Pregnancy *(choose all that apply)*

For definitions of the terms listed below, please refer to the *Glossary for Hospital Mandatory Birth Reporting.*

☐Acute or chronic lung disease	☐Hypertension, pre-eclampsia	☐Previous preterm birth
☐Anemia (HCT<30, HGB<T 10)	☐Hypertension, eclampsia	☐Previous cesarean delivery:
☐Cardiac disease	☐Hypertension, gestational *(PIH, preeclampsia)*	If yes, how many? _____
☐Diabetes, Prepregnancy	☐Incompetent cervix	☐Other previous poor outcome
☐Pre-diabetes	☐Lupus erythematosus	☐Renal disease
☐Gestational diabetes	☐Maternal cancers	☐RH sensitization
☐Hemoglobinopathy, non-sickle cell anemia	☐Maternal PKU	☐Seizure disorders
☐Sickle cell anemia	☐Oligohydramnios	☐Vaginal bleeding
☐Hydramnios	☐Pre-term labor this pregnancy	☐Weight loss inappropriate for mother
☐Hypercoagulable conditions	☐Previous infant with birth defects	☐Weight gain inappropriate for mother
☐Hypertension, Prepregnancy *(Chronic)*	☐Previous infant 4000+ grams	☐None of the above
☐Other (specify):		

COMPLICATIONS OF LABOR AND DELIVERY

- **Standard Certificate of Live Birth (1989 revision)**

COMPLICATIONS OF LABOR AND DELIVERY *Check all that apply:*

1 ☐Abruptio Placenta
2 ☐Anesthetic complications
3 ☐Breech/malpresentation
4 ☐Cephalopelvic disproportion
5 ☐Cord prolapse
6 ☐Dysfunctional labor
7 ☐Febrile (>100 degrees F. Or 38 degrees C.)
8 ☐Fetal distress
9 ☐Meconium, moderate to heavy
10 ☐Other excessive bleeding
11 ☐ Placenta previa
12 ☐Precipitous labor (<3 hours)
13 ☐Prolonged labor (>20 hours)
14 ☐Prolonged second stage (>3 hours)
15 ☐Rupture of membrane - Premature (≥12 hours)
16 ☐Rupture of membrane - Prolonged (>24 hours)
17 ☐Seizures during labor
18 ☐Other
(specify):_____
_____
_____
00 ☐No complications during labor and delivery

- **Standard Certificate of Live Birth (2003 revision)**

COMPLICATIONS of Labor and Delivery *(choose all that apply)*

For definitions of the terms listed below, please refer to the *Glossary for Hospital Mandatory Birth Reporting.*

☐Abruptio placenta	☐Dysfunctional labor	☐Prolonged labor (>=20 hrs)
☐Anesthetic complications	☐Moderate/heavy meconium	☐Prolonged 2nd stage
☐Antibiotics received by the mother during labor	☐Non-vertex presentation	☐Premature rupture of the membranes (<=12 hrs)
☐Cephalopelvic disproportion	☐Other excessive bleeding	☐Rupture of membrane – prolonged (>24 hours)
☐Clinical chorioamnionitis/ temp >=38C (100.4F)	☐Placentia previa	☐Seizures during labor
☐Cord prolapse	☐Precipitous labor (<3 hrs)	☐None of the above

☐Other *(specify)*:

ABNORMAL CONDITIONS OF THE NEWBORN

- **Standard Certificate of Live Birth (1989 revision)**

ABNORMAL CONDITIONS OF THE NEWBORN *Check all that apply:*

1☐Acidosis	12☐Jaundice (bilirubin>10)
2☐Anemia	13☐Meconium aspiration syndrome
3☐Congenital infection	14☐Positive toxicology screen
4☐Cyanosis	15☐Seizures
5☐Erb's Palsy, or	16☐Sepsis
6☐Other birth trauma	17☐Tachypnea
7☐Fetal Alcohol Syndrome	18☐Other (specify):
8☐Hyaline Membrane Disease/RDS	_____
9☐Hypotonia	_____
10☐Hypoxia	_____
11☐Intracranial hemorrhage	00☐No abnormal conditions

- **Standard Certificate of Live Birth (2003 revision)**

ABNORMAL CONDITIONS OF THE NEWBORN *(choose all that apply)*

For definitions of the terms listed below, please refer to the *Glossary for Hospital Mandatory Birth Reporting.*

☐ Acidosis	☐ Hypotonia	Significant birth injury:
☐ Anemia	☐ Hypoxia	☐ Skeletal fracture(s)
☐ Antibiotics for suspected neonatal sepsis	☐ Intracranial hemorrhage	☐ Peripheral nerve injury
☐ Congenital infection	☐ Jaundice (bilirubin>10)	☐ Soft tissue/solid organ hemorrhage
☐ Cyanosis	☐ Meconium aspiration syndrome	☐ Erb's palsy
☐ Fetal alcohol syndrome	☐ Positive toxicology screen	☐ Tachypnea
☐ Hyaline membrane disease/RDS	☐ Seizure or serious neurologic dysfunction	☐ None of the above

☐Other *(specify)*:

Glossary

Adequacy of Prenatal Care Utilization (APNCU) Index

The Adequacy of Prenatal Care Utilization Index, developed by Dr. Milton Kotelchuck, is the measure used in this publication to classify the adequacy of prenatal care received by Massachusetts resident mothers. (*Please note:* Prior to the *Births 2001 publication, the Kessner Index was used to measure adequacy of prenatal care*.) The APNCU Index has five categories (adequate intensive, adequate basic, intermediate, inadequate, and unknown), based on the month of pregnancy in which prenatal care begins and the percent of expected prenatal care visits for the time period during which a woman receives prenatal care services.

Ancestry

Also known as ethnicity or ethnic origin. See the section above on Parent Worksheet (page 31).

Birthweight

The weight of an infant recorded at the time of delivery. It may be recorded in either pounds/ounces or grams. If recorded in pounds/ounces, it is converted to grams for use in this report.

1 pound = 453.6 grams
1,000 grams = 2 pounds and 3 ounces

Birthweight Categories

Normal birthweight (NBW): An infant's weight of 2,500 grams (approximately 5.5 pounds) or more recorded at birth.

Low birthweight (LBW): An infant's weight of less than 2,500 grams (5.5 pounds) recorded at birth.

Very low birthweight (VLBW): An infant's weight of less than 1,500 grams (3.3 pounds) recorded at birth.

Cesarean Delivery or Cesarean Section

Primary: A mother's first cesarean delivery.
Repeat: A cesarean delivery that has been preceded by at least one Cesarean delivery.

Confidence Intervals

In testing for statistical significance, we have used the testing methods from the National Center for Health Statistics (NCHS). These methods are presented in the following document:

Births: Final Data for 2002. National Vital Statistics Reports, Volume 52, Number 10. 114 pp. (PHS) 2004-1120.

For comparisons of more than 100 events, whether they are rates, proportions, or counts, the binomial distribution is assumed, and confidence intervals are examined to see whether they overlap. When the number of events is less than 100, a Poisson distribution is assumed, and confidence intervals are constructed based upon the Poisson distribution. For more details and exact formulas for calculating confidence intervals or other tests of statistical significance, refer to the publication listed above.

Delivery
A delivery may consist of one or more live born or stillborn fetuses. The number of deliveries in a given period will be equal to or less than the number of births because multiple births (twins, triplets or higher–order births) are counted as single deliveries.

Ethnicity
Also known as ethnic origin or ancestry. See the section above on Parent Worksheet on page 31.

Gestational Age (GA)
The developmental period of a fetus from time of conception to time of birth, measured in weeks. There are two main methods for determining gestational age used in this report.

1. *Clinical estimate of gestational age.* The gestational age is determined by a physical examination and neuromuscular assessment of the newborn.
2. *Last Menstrual Period.* The gestational age is calculated as the interval between the first day of the mother's last normal menstrual period (LMP) and the infant's date of birth. The National Center for Health Statistics uses this method for determining preterm as is shown in Figure 17.

Indicators that are based upon gestational age, such as percent of preterm births, vary depending upon with method is used in their calculation. Using the LMP method as the NCHS does, makes the percent preterm births higher (10.7%, 2010); while using the clinical estimate of gestational age causes a lower value for percent preterm births (8.6%, 2010). The reader must be aware of the method of calculating gestational age when evaluating the preterm percentages.

HMO
Health Maintenance Organization.

Infant
A child whose age is less than one year (365 days).

Live Birth
A live birth is any infant who breathes or shows any other evidence of life (such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles) after separation from the mother's uterus, regardless of the duration of gestation.

Low Birthweight (LBW)
See Birthweight Categories.

Mother's Birthplace
In this publication, birth characteristics are presented according to mother's birthplace: those who were born in the U.S. and Puerto Rico/U.S. territories ("U.S. born") and those who were born outside of the U.S. and Puerto Rico/U.S. territories ("Non-U.S. born").

Prenatal Care Source of Payment
Categories used in this publication include:

Public: Government programs including CommonHealth, Healthy Start, Medicaid/MassHealth, and Medicare, or free care;

Private: Commercial indemnity plan, commercial managed care, or other private insurance;

Self-paid: Self paid.

Preterm
Infant born with less than 37 weeks of gestation.

Race
See the section above on Parent Worksheet on page 30.

Resident Birth
The birth of an infant whose mother reports that her usual place of residence is in Massachusetts. In Massachusetts, a resident is a person with a permanent address in one of the 351 cities or towns. All data in this publication are resident data unless otherwise stated. Resident data include all events that occur to residents of the Commonwealth, wherever they occur. There is an exchange agreement among the 50 states, District of Columbia, Puerto Rico, Virgin Islands, Guam, and Canadian provinces that provides for exchange of copies of birth and death records. These records are used for statistical purposes only, and allow each state or province to track the births and deaths of its residents.

U. S. Nativity
Those mothers who were born in the 50 states and District of Columbia, Puerto Rico, the US Virgin Islands, or Guam.